#15/Brief 2871
AF Appeal 6/3/03
J Bell

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Seiji UMEMOTO, et al.

Docket No: Q62563

Appln. No.: 09/756,792

Group Art Unit: 2872

Confirmation No.: 6553

Examiner: Alessandro V. AMARI

Filed: January 10, 2001

For: OPTICAL PATH CHANGING POLARIZER

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

Commissioner for Patents
Washington, D.C. 20231

Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellant submits the following:

I. REAL PARTY IN INTEREST

Based on information supplied by Appellants, and to the best knowledge of Appellants' legal representatives, the real party in interest is the assignee, NITTO DENKO CORPORATION.

II. RELATED APPEALS AND INTERFERENCES

Appellants, as well as Appellants' assigns and legal representatives are unaware of any appeals or interferences which will be directly affected by, or which will directly affect, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-29 are pending in the application. Claims 1-5, 9-20 and 24-29 are finally rejected. The Examiner has objected to claims 6-8 and 21-23 but would find them allowable if placed in independent form. Thus, claims 1-5, 9-20 and 24-29 is the subject of this appeal and, as finally rejected, are set forth in the attached Appendix.

IV. STATUS OF AMENDMENTS

Claims 1-29 were in the originally filed application. An amendment filed on September 17, 2002 in response to a first Office Action dated June 19, 2002 amended claims 4-8, 13, 16 and 20-24 and was entered. An Amendment filed on February 24, 2003 in response to the final Office Action mailed on November 25, 2003 amended claim 19. An Advisory Action mailed March 12, 2003 entered the Amendment filed on February 24, 2003, but continued to hold claims 1-5, 9-20 and 24-29 unpatentable. Following issuance of the Advisory Action on March 24, 2003, Appellants appealed the final rejection of claims 1-5, 9-20 and 24-29, including amended claim 19.

V. SUMMARY OF THE INVENTION

The present invention is an optical path changing polarizer that is particularly applicable to a light-distributing structure for use with a liquid-crystal display device where light incident on one side of the device is changed to a viewing direction in a highly efficient manner. The claimed invention is focused on the optical path changing polarizer that provides such change in light direction. In particular, as illustrated in Figs. 1A-1I, the polarizer device 1 comprises a polarizer (P) formed of a polarizing layer 13 that is sandwiched between protective layers 12, 14. A strip sheet 16 is applied by an adhesive 15 to one surface of the polarizer P and a repetitive prismatic layer 11a is applied to the other surface of the polarizer by an adhesive 11b. The repetitive prismatic layer has formed on one surface (the surface that is not attached to the polarizer) optical path changing slopes that are aligned in a substantially constant direction to have a surface A1 inclined at an angle in a range of 35-48° with respect to the plane of the

polarizer. Various embodiments for such structure are illustrated in Figs. 1A to 1I, and these embodiments include a variety of polygon shapes that indent into or extend from the surface of the prismatic layer.

These features are substantially claimed in independent claims 1 and 13, which expressly recite an optical path changing polarizer that comprises a combination of a polarizer, an adhesive layer on one side of the polarizer and a repetitive prismatic structure, particularly one with specified angles of inclination (35-48 degrees), on the other side of the polarizer. Claim 1 specifies that in the combination, the adhesive layer has a refractive index within a range difference of 0.1 or less from a refractive index of a surface layer of the polarizer. Claim 13 specifies that in the combination, each of the respective refractive indexes of the adhesive layer and the material for forming the optical path changing slopes is not lower than a refractive index of the polarizing element or a transparent protective layer.

VI. ISSUES

This appeal presents four issues:

Issue A: Are claims 1-4 and 9-12 unpatentable over Yamamoto et al (5,341,231) in view of Taira et al (5,712,694) under 35 USC §103(a)?

Issue B: Are claims 13-19 and 25-29 unpatentable over Yamamoto et al (5,341,231) in view of Taira et al (5,712,694) under 35 USC §103(a)?

Issue C: Are claims 5 and 20 unpatentable over Yamamoto et al (5,341,231) in view of Taira et al (5,712,694) and further in view of Hira et al (5,961,198) under 35 USC §103(a)?

Issue D: Is claim 24 patentable due to its dependence on a claim (23), which the Examiner finds to contain allowable subject matter?

Issue E: Whether claim 1 is properly rejected for provisional double patenting on the basis of four separate applications commonly owned by the assignee?

VII. GROUPING OF CLAIMS

Claims 1-5 and 9-12, comprising independent claim 1 and dependent claims 2-5 and 9-12, stand and fall together, because they all are directed to the basic features of the optical path changing polarizer, comprising a polarizer, adhesive layer and repetitive prismatic structure, and further specifies the refractive index of the adhesive layer to be within a range of difference with respect to a surface layer of one side of the polarizer to which the adhesive layer is disposed, a combination of features that is not in any cited art and is an independent basis for patentability.

Claims 13-20 and 25-29 comprising independent claim 13 and dependent claims 14-20 and 25-29, stand and fall together, because they all are directed to the basic features of the optical path changing polarizer, comprising a polarizer, adhesive layer and repetitive prismatic structure, and further specifies the refractive indices of the adhesive layer and a material for forming an optical path changing slopes is not lower than a refractive index of the polarizing element or a transparent protective layer, a combination of features that is not in any cited art and is an independent basis for patentability.

Claim 24 stands and falls alone because it is dependent on an allowable claim.

VIII. ARGUMENTS

ISSUE A - Claims 1-4 and 9-12 are patentable over Yamamoto et al (5,341,231) in view of Taira et al (5,712,694) under 35 USC §103(a).

The subject matter of independent claims 1-4 and 9-12 is an optical path changing polarizer comprising a polarizer, an adhesive layer disposed on one side of the polarizer and a repetitive prismatic structure provided on the other side of the polarizer, where the adhesive layer has a refractive index different by 0.1 or less from a refractive index of a surface layer of the polarizer on which the adhesive is disposed, and the prismatic structure has specified alignments and inclinations (range of 35 to 48 degrees). This claimed combination uses slope reflection to control the optical path of light, mainly utilizes light exhibiting a peak in a direction of regular reflection and controls the optical path of the reflected light. The benefit is frontal directivity,

favorable for bright display in a transmission mode. Also in a reflection mode, flat portions of the polarizer, except the optical path changing slopes, can be utilized to ensure efficient entrance, reflection and transmission of external light. Consequently, a balance of light favorable to both reflection and transmission modes is obtained. (Page 7, lines 11-23)

Yamamoto et al

The primary reference relied upon by the Examiner is Yamamoto et al, which is directed to a liquid crystal display device, as illustrated in Fig. 6. The display device receives edge lighting from a source 63a, 63b. From the point of the observer 70, the display device 60 includes a polarizer 64a, a light guide plate 61, a display element 72 (comprising transparent substrate 65a, liquid crystal layer 66 and transparent substrate 65b), adhesive 67b, second polarizer 64b, adhesive layer 67c and opaque aluminum reflective layer 68 having an irregular reflective surface 68a. As illustrated in Fig. 6, light from the source (e.g., 63b) is reflected at the surface 68a and is directed towards the viewer 70. The Examiner relies upon the structure illustrated in Fig. 6, particularly the combination of polarizer 64b, adhesive layer 67c and aluminum layer 68, in framing the final rejection.

Yamamoto illustrates in Figs 9(1)-(4) the effect of a refractive index with respect to the light guide plate 61, but has no teaching with respect to the polarizer.

Yamamoto illustrates in Fig. 10 a sectional view of a LCD device 160, which uses a light guide plate 161 with an air layer 71a and a polarizer 64a on one side and an air layer 71b and substrate 65a for a LCD element 72 on the other side. The plate 161 has protrusions 161c that project toward the LCD 72 and their optical effect with regard to the direction of light toward the LCD 72 for different indices of refraction is illustrated in Figs 15(1)-(3) and explained at cols. 13-18. The same combination of polarizer 64b, adhesive 67b and aluminum reflector 68, as illustrated in Fig. 6, is used to reflect light toward a viewer.

Thus, the liquid crystal display device of Yamamoto et al has five basic components that define its manner of operation, between one or more sources of light 63a, 63b and an observer 70. The light originating at the sources 63a, 63b passes into the edge of the first component, a

light guide plate 61, and is directed away from the observer 70 toward the second component, a display element 72. The light then passes through the third component, a polarizer 64b, and is reflected by the fourth component, reflector plate 68. The reflected light passes in sequence through the third, second and first components toward the fifth component, a second polarizer 64a, before reaching the observer 70. In all embodiments, the light must pass from the light guide plate 61 to the reflector plate surface 68a before being redirected to the polarizer 64a and the observer.

Taira et al

As illustrated in Fig. 1, the Taira reference is concerned with an LCD having light provided by a fluorescent-tube emitter 101 provided to a side of a light guiding plate 103 for transmission of light along the length of the plate as non-polarized light (N) 104 and emission from the plate onto the PBS sheet 105 having a multi-layered film 106. As explained at col. 6, line 63-col. 7, line 12, a first polarized light is generated at the PBS sheet 105. Specifically, linearly polarized light (P) 107, defined by a polarized light component contained in an incident face, is transmitted through the multi-film layer 106 by interference effect, and is collected by the light-gathering function of a prism sheet 109. A second polarized light component (S) 108 is emitted to the multi-layered sheet 106 and is reflected back, and ultimately is transmitted out. The prism sheet 109 has prism faces of groove-like form. Prism sheet 109 is formed in a manner so that the polarized light 107 incident onto the sheet 105 is a P wave with respect to the prism face 110.

With this basic embodiment in mind, the Examiner specifically refers to Figures 14 and 15 of Taira for a teaching of a light guiding plate 103, which receives light from a fluorescent source 101 and, using depressed portions 1201, as described at col. 3, line 50-col. 4, line 64, permits the non-polarized light (N 1202) from fluorescent source 101 to be reflected. With reference to Fig. 15, the non-polarized light 1301 is reflected as polarized light 1302 from the boundary face 1306, the reflected light containing approximately 15% S wave. The boundary face 1306 also transmits the remainder of the light, according to the patent, transmitting approximately 85% S polarization and 100% P polarization. In this manner, only the S wave is

emitted from the light-guiding plate and used as a polarized illumination light. As explained at col. 14, line 22, the P wave is appropriately converted into an S wave by repeating reflection diagonally to the polarizing direction. Because of this continued conversion of P wave to an S wave at successive depressed portions 1201, there is no need for a polarizer in this embodiment. Indeed, none of the optical path structures in the patent have a layer designated as a "polarizer." Indeed, the only reference to a polarizer in Taira et al is with respect to the plates in the light emitting structures 2602 and 2603 in Fig. 31 and layer 3109 in Fig. 36.

For such a structure, having no polarizer, the patent teaches at col. 14, lines 44-64 that the light guiding plate made of different materials (PMMA and PC) may use different incident angles α of light 1301, within a range of 0-48.2° to achieve total reflection. The boundary face may be disposed in an angle θ, formed with regard to the flat lower surface of the light guiding plate within a range of 3-56.3°, preferably 26.3-36.3° for PMMA. With regard to PC, the range of α is 0-51.3° and the range of θ is 16-58°, preferably 28-38°.

The Yamamoto Structure Applied by the Examiner has Admitted Deficiencies

The Examiner admits at pages 8, 9, 12 and 13 of the first Office Action that Yamamoto et al does not teach an optical path changing polarizer combination with a polarizer having an adhesive on one side and where:

(1) a repetitive prismatic structure is provided on the other side of the polarizer, the repetitive prismatic structure including optical path changing slopes aligned in a substantially constant direction so as to be inclined at an angle in a range of from 35 to 48 degrees with respect to a plane of the polarizer, as claimed in claims 1 and 13;

(2) the optical path changing slopes consist of one kind of slopes aligned in a substantially constant direction or include two or more kinds of slopes in which one kind of slopes aligned in a substantially constant direction serve as a reference while another kind of slopes aligned in another substantially constant direction are opposite to said one kind of slopes, as claimed in claims 2 and 14.

(3) optical path changing slopes are provided with ridge lines parallel to or inclined within an angle range of ±30° with respect to one side of the polarizer, as claimed in claims 11 and 27

(4). a tacky layer on the polarizer is covered with a "strip sheet," as claimed in claims 16 and 17.

This large number of admitted deficiencies alone would be difficult to remedy by use of a supplemental reference, without engaging hindsight.

The Yamamoto Reference Has Added Deficiencies Identified by Appellant

Even more fundamental than the Examiner's admitted deficiencies, the Yamamoto patent fails to even teach a polarizer with an adhesive layer on one side and a repetitive prismatic structure on the other side, particularly one with slopes at an inclination angle in the range of 35 to 48 degrees. A prismatic structure, as would be understood from the teachings of the application and a conventional understanding of the term **prism** (Webster's Collegiate Dictionary: "a transparent body that is bounded in part by two nonparallel plane faces and is used to refract or disperse a beam of light") would be required to transmit and refract light. The reflective surface 68a relied upon by the Examiner is not "prismatic," i.e., "formed by a prism." The reflective surface is opaque and not a prism or otherwise a "prismatic structure," as claimed.

The polarizer 64b on which the Examiner relies for his rejection has an adhesive 67b on one side and an adhesive 67c on the other side, the adhesive 67c joining to an opaque reflector plate 68 on the other side and not a prismatic structure. Even if the light guide in Fig. 10 were successfully asserted to have a prismatic surface, it does not meet the recited range of angles nor does the combination of polarizer and adhesive meet the claimed combination.

Further, there is no teaching related to number of other claimed structures, including but not limited to the use of a strip sheet as in claim 2, the shape of the prisms as in claims 4, 5, 19 and 20, a light reflection layer "disposed closely on a surface" on which the prismatic structure is formed, as in claims 10 and 26 and the use of a diffusion type adhesive layer, as in claims 28 and 29.

Accordingly, the Examiner must look to Taira et al for such supplemental teachings.

Taira Does Not Disclose an Optical Path Changing Polarizer

As previously explained, Taira et alconcerns light provided by a fluorescent tube emitter. Such light is applied to the side of a light guiding plate 103 and is intended to be transmitted along the length of the plate as non-polarized light 104, as illustrated in Fig. 2. As is clear from the illustrations in Fig. 2, as well as Figs. 14 and 15 cited by the Examiner, light from source 101 is directed into the light guide plate 103, which itself is provided with the repetitive prismatic structure 1201. Adjacent that prismatic structure is a reflector 114. The light guide plate in combination with the reflector ensures that the light does not pass through the plate, but is redirected to the observer. On the observer side of the light guiding plate 103 is a prism sheet 109 and halfwave filter 111. There is no polarizer shown in the illustration.

Clearly, Taira et al does not have any structure to meet the claimed combination of a polarizer, adhesive layer on one side of the polarizer and a repetitive prismatic structure on the other side of the polarizer that together form an optical path changing structure. The Examiner refers to the mention of a polarizing plate at cols. 5 (lines 51-67), 7 (lines 35–45) and 8 (lines 18-27), where the plate is "placed on the incident side of the liquid crystal panel". There is no description of any adhesive or any path changing structure related to the brief mention of a polarizing plate.

Fig. 36 illustrates the plate 3109 as being adjacent the liquid panel 3106. However, the plate does not have on one side an adhesive and the other side the repetitive prismatic structure, as claimed. There is no optical path changing structure, particularly as that term is used in the present application.

Clearly, with reference to the illustration of the invention in Figs. 1A-1I, the purpose of the combination of a polarizer, adhesive layer and repetitive prismatic structure to form an optical path changing polarizer is completely different from the structure in Taira et al. The

absence of such combination, particularly in light of the absence of any added discussion of the refractive index of an adhesive layer that is on one surface of the polarizer or the angles of inclination of the slopes on the prismatic structure, as claimed in claim 1, renders the teachings of the reference irrelevant.

Taira Does Not Remedy the Deficiencies of Yamamoto

As to claim 1, by the Examiner's admission, there is no teaching in Yamamoto et al of an adhesive on one side of a polarizer and a repetitive prismatic structure on the other side of a polarizer, particularly one where the optical path changing slopes are aligned in a substantially constant direction and are inclined at an inclination angle in a range of from 35 to 48 degrees with respect to the plane of the polarizer. Taira et al has no such teaching either, not even in Fig. 36, and certainly does not teach a modification of Yamamoto et al that would arrive at the claimed invention.

Taira's Structure Precludes A Teaching or Suggestion for a Combination of Taira and Yamamoto et al, nor Could They Be Combined

Yamamoto and Taira et al do not teach or suggest a combination that renders the invention unpatentable since one of ordinary skill would not look to Taira et al for guidance as to structural modifications that may be applied to remedy the deficiencies of Yamamoto et al. What teaching in Taira et al would lead to a change in Yamamoto et al that would arrive at the present invention? What teaching in Yamamoto et al would lead one skilled in the art to look to Taira et al? What is the motivation? None in fact exists.

The absence of any motivation is easily understood from the wholly different purposes of the structures in Yamamoto et al and Taira et al, i.e., the placement of the display with respect to the light source and light guide plate. While the Examiner has suggested that the structure of Taira may be applied to Fig. 6 of Yamamoto, Appellants respectfully submit that this would involve inserting the light guiding plate 103 of Taira (Fig. 2) in place of the light guiding plate 61 of Yamamoto et al. However, no purpose would be served by adding such repetitive prismatic structure into the light guiding plate 61 of Yamamoto since the intention in the

Yamamoto light guide plate structure is to have light reflected away from the observer 70 and toward the display element 72 (see Fig. 6). The light guiding plate 103 in Taira et al would do just the opposite, as the light in the plate 103 is immediately reflected from layer 114 toward the observer and the liquid panel (see Fig. 36).

If for some reason one skilled in the art were to substitute the light guide plate 103 and reflector 114 of Taira et al for the plate 61 of Yamamoto et al in Fig. 6, the prismatic structure in Figure 14 of Taira would direct light away from the display element 72 as is apparent from the light path in Fig. 14. Since Yamamoto et al relies upon light traveling through the display element 72 towards the reflecting surface 68 for direction outwardly to the observer 70, this critical function in Yamamoto et al would be precluded, rendering the structure inoperable.

Further, one of ordinary skill would have no reason for simply substituting the structure of Figs. 14 and 15 of Taira for the reflector 68 in Fig. 6 of Yamamoto et al since that would require either two light guiding plates (103 and 61) or the elimination of the entire display element 72. There is no teaching or suggestion that the light guiding plate of Taira et al could be substituted for any other structure of Yamamoto, including the reflector 68. The sculpted light plate in Taira et al receives light from the side and not from the top as does the reflector 68 in Yamamoto et al, and would not be an appropriate replacement for the reflector of Yamamoto.

In short, regardless of what substitution of structures from Taira et al into Yamamoto et al is attempted by the Examiner, an ineffective combination would result. Moreover, in no event, would the claimed arrangement of polarizer, adhesive and repetitive prismatic structure, particularly with the claimed refractive index relationship between the adhesive layer and surface layer of the polarizer, be found as a result of such combination.

ISSUE B: **Claims 13-19 and 24-29 are patentable over Yamamoto et al (5,341,231) in view of Taira et al (5,712,694).**

The subject matter of independent claims 13-19 and 24-29 is an optical path changing polarizer comprising a polarizer, including polarizing element and transparent protective layer, an adhesive layer disposed on one side of the polarizer, and a repetitive prismatic structure provided on the other side of he polarizer, where the adhesive layer and material forming the optical path changing slopes has a specified refractive index relative to that of the polarizing element or the transparent protective layer, and the prismatic structure has specified alignments and inclinations.

For the reasons given with respect to the rejection of claims 1-4 and 9-12, particularly the failure of Yamamoto et al and Taira et al individually or in combination to teach or suggest the claimed optical path changing polarizer, and the incompatibility of the two references that precludes their combination, this rejection should be reversed.

Moreover, independent claim 13, and the claims that depend therefrom, specify that the optical path changing polarizer has the distinctive feature wherein each of the refractive indexes of the adhesive layer and a material for forming the optical path changing slopes is not lower than a refractive index of the polarizing element or the transparent reflective layer. The benefit of this arrangement is that, in the transmission mode, when the optical path changing polarizer is bonded to a liquid-crystal cell, for example, total reflection of the light incident on one of side surfaces of the liquid-crystal cell or the transmission light of the incident light through the adhesive layer or through the polarizer is suppressed. Thus, the light incident on the side surface can be made incident on the optical path changing slopes efficiently. Particularly with respect to the light which is incident on one of side surfaces of the liquid-crystal cell, and which makes a small angle (approximately parallel) with respect to the liquid-crystal cell plane so that the light will be transmitted to a position far from the incidence side surface, total reflection of the light is

suppressed efficiently so that brightness and uniformity of brightness can be improved on the whole screen. (Page 7, line 24-page 8, line 17)

Yamamoto et al discusses the relationship of refractive indices in the light guide plate and adjacent layers, all disposed above the display element 72, as illustrated in Figs. 9(1)-(4). However, there is no discussion of refractive indices with regard to the polarizer layer 65a. Moreover, there is no discussion of refractive indices with regard to reflective layer 68 or the adjacent polarizer 65b. The discussion of refractive indices with regard to Figs. 15(1)-(3) similarly has no mention of any polarizing element or transparent protective layer. In short, Yamamoto et al does not consider either the structure or the relative refractive indices of such structure, as claimed.

Taira et al is similarly deficient in that the only mention of the index of refraction with regard to the embodiments in Figs. 14 and 15, cited by the Examiner, is at col. 13, lines 50-59 where the refractive indices of light on an incident side medium and an emitting side medium of a light guiding plate 103. However, this does not teach the claimed relationship between an adhesive layer disposed on one side of a polarizer and a prismatic structure disposed on another side of the polarizer. As previously noted, there is no polarizer taught in Taira et al as in the claimed combination, and only a polarizer plate is mentioned, such plate having no relevance to the claimed combination and thus no relevance to the stated refractive indices in the claim.

Because of these deficiencies in each of Yamamoto et al and Taira et al, there is no teaching or suggestion of the claimed optical; path changing polarizer with the refractive indices ascribed to the adhesive layer, slopes, polarizer or protective layer, as claimed. How and why such structure and indices would be derived from the cited references is purely a matter of hindsight, taken from the present invention and not from the teachings of the prior art.

ISSUE C: **Claims 5 and 20 unpatentable over Yamamoto et al (5,341,231) in view of Taira et al (5,712,694) and further in view of Hira et al (5,961,198).**

The Examiner admits that the combination of Yamamoto et al and Taira et al does not teach optical path changing slopes that are formed into a structure of grooves or protrusions each substantially shaped like a tetragon or a pentagon in section. The Examiner looks to Hira et al for such structures, particularly in Figs. 20(a), 20(c) and 21(a)-21(c). However, nothing in Hira remedies the deficiencies of the Examiner's position in attempting to combine Taira and Yamamoto. In the absence of any legally sufficient basis for a combination of Yamamoto and Taira et al to render the parent claims obvious, these claims should be allowable.

ISSUE D: **Claim 24 is patentable over Yamamoto et al (5,341,231) in view of Taira et al (5,712,694).**

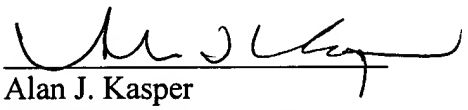
Claim 24 was amended in the amendment filed in response to the first Office Action to depend from claim 23. In view of the indicated allowability of claim 23 if placed in independent form, this claim also should be allowable.

ISSUE E: The Rejection of Claim 1 will be overcome, if the claim is found patentable, by the filing of a terminal disclaimer in all cases. Otherwise, no terminal disclaimer is necessary.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: May 27, 2003

APPENDIX

CLAIMS 1-5, 9-20 and 24-29 ON APPEAL:

1. An optical path changing polarizer comprising:

a polarizer;

a adhesive layer disposed on one side of said polarizer, said adhesive layer having a refractive index different by 0.1 or less from a refractive index of a surface layer of said one side of said polarizer; and

a repetitive prismatic structure provided on the other side of said polarizer, said repetitive prismatic structure including optical path changing slopes aligned in a substantially constant direction so as to be inclined at an inclination angle in a range of from 35 to 48 degrees with respect to a plane of said polarizer.

2. An optical path changing polarizer according to claim 1, wherein said optical path changing slopes consist of one kind of slopes aligned in a substantially constant direction, or include two or more kinds of slopes in which one kind of slopes aligned in a substantially constant direction serve as a reference while another kind of slopes aligned in another substantially constant direction are opposite to said one kind of slopes, and wherein said adhesive layer is covered with a strip sheet.

3. An optical path changing polarizer according to claim 1, wherein an inclination angle of each of said optical path changing slopes with respect to said polarizer plane is in a range of from 38 to 45 degrees.

4. An optical path changing polarizer according to claim 1, wherein said optical path changing slopes are formed into a structure of grooves each substantially triangular shaped.

5. An optical path changing polarizer according to claim 1, wherein said optical path changing slopes are formed into a structure of grooves or protrusions each having one of a substantially tetragon shape or a pentagon shape in section.

9. An optical path changing polarizer according to claim 1, wherein said prismatic structure is formed so as to be added to or integrated with a transparent protective layer of said polarizer.

10. An optical path changing polarizer according to claim 1, further comprising a reflection layer disposed closely on a surface on which said prismatic structure is formed.

11. An optical path changing polarizer according to claim 1, wherein said optical path changing slopes have ridgelines parallel to or inclined within an angle range of ±30 degrees with respect to one side of said polarizer.

12. An optical path changing polarizer according to claim 1, wherein said adhesive layer is of a light diffusion type.

13. An optical path changing polarizer comprising:

a polarizer including a polarizing element and a transparent protective layer disposed on at least one side of said polarizing element, said polarizer having two side surfaces;

an adhesive layer disposed on one side surface of said polarizer; and

a repetitive prismatic structure disposed on the other side of said polarizer, said repetitive prismatic structure including optical path changing slopes aligned in a substantially constant direction so as to be inclined at an inclination angle of from 35 to 48 degrees with respect to a plane of said polarizer;

wherein each of respective refractive indexes of said adhesive layer and a material for forming said optical path changing slopes is not lower than a refractive index of said polarizing element or said transparent protective layer.

14. An optical path changing polarizer according to claim 13, wherein said optical path changing slopes consist of one kind of slopes aligned in a substantially constant direction, or include two or more kinds of slopes in which one kind of slopes aligned in a substantially constant direction serve as a reference while another kind of slopes aligned in another substantially constant direction are opposite to said one kind of slopes.

15. An optical path changing polarizer according to claim 13, wherein said repetitive prismatic structure having said optical path changing slopes is formed on an outer surface of a film, the other surface of said film being bonded to said other side of said polarizer through a second adhesive layer; and wherein a refractive index of said second adhesive layer is not lower than the refractive index of said polarizing element or transparent protective layer.

16. (Amended) An optical path changing polarizer according to claim 13, wherein at least said adhesive layer disposed on said one side surface of said polarizer is a tacky layer.

17. An optical path changing polarizer according to claim 16, wherein an exposed surface of said tacky layer on said one side surface of said polarizer is covered with a strip sheet.

18. An optical path changing polarizer according to claim 13, wherein each of said optical path changing slopes is inclined at an inclination angle in a range of from 38 to 45 degrees with respect to a plane of said polarizer.

19. An optical path changing polarizer according to claim 13, wherein each of said optical path changing slopes is based on a groove structure having a shape substantially of an isosceles triangle or any other triangle in section

20. An optical path changing polarizer according to claim 13, wherein each of said optical path changing slopes is based on a groove or protrusion structure having one of a substantially tetragon or a pentagon shape in section.

24. An optical path changing polarizer according to claim 23, wherein said discontinuous grooves having optical path changing slopes are arranged at random.

25. An optical path changing polarizer according to claim 13, wherein said repetitive prismatic structure having optical path changing slopes is formed so as to be integrated with said transparent protective layer of said polarizer.

26. An optical path changing polarizer according to claim 13, wherein a light reflection layer is disposed closely on a surface on which said structure of irregularities having optical path changing slopes is formed.

27. An optical path changing polarizer according to claim 13, wherein ridgelines of said optical path changing slopes are parallel to or inclined within an angle range of ±30 degrees with respect to one side of said polarizer.

28. An optical path changing polarizer according to claim 13, wherein said adhesive layer is of a light diffusion type.

29. An optical path changing polarizer according to claim 28, wherein said light diffusion type adhesive layer is provided on a surface of said polarizer.